

General Specifications

Models FQ2A, FQ2V Pulse to Analog Converter (Free Range Type)

JUXTA

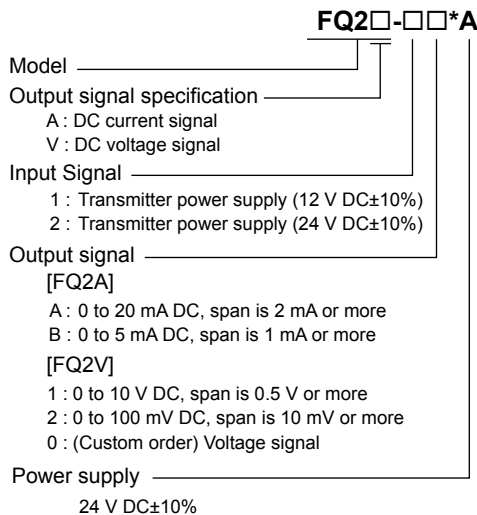
GS 77J08Q02-01E

■ General

The FQ2A/FQ2V is a compact, front terminal connection type pulse-to-analog converter that receives pulse-train signals and converts them into DC voltage or DC current signals proportional to the frequency.

- With built-in 12 V or 24 V power supply for pulse transmitter inputs.
- Input pulse types include current pulse, voltage pulse, non-voltage contact, and open collector contact.
- I/O range, input pulse width, and low cut point setting, zero/span adjustment and I/O monitoring can be made on-site, using the optional Parameter Setting Tool (VJ77) or Handy Terminal (JHT200).
- Internal filter can be set to eliminate chattering. (In cases where the input frequency range is up to 100Hz, the pulse width is 3ms or more)

■ Model and Suffix Codes



■ Ordering Information

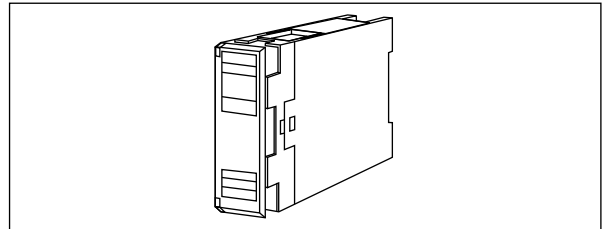
Specify the following when ordering.

- Model and suffix codes: e.g. FQ2A-1A*A
 - Input range: e.g. 0 to 1000 Hz
 - Output range: e.g. 0 to 16 mA DC
 - Low cut point: e.g. 1 Hz
 - Input resistance: e.g. 200 Ω
 - Filter: e.g. OFF*
- *:In case the input frequency range is up to 100Hz (pulse width is 3ms or more), ON/OFF can be specified.

■ Input/Output Specifications

Input signal: Contact pulse, voltage pulse or current pulse

Input frequency: F_0 to F_{100} Hz
 $(0 \text{ Hz} \leq F_0 \leq F_{100}/2 \text{ Hz})$
 $(0.1 \text{ Hz} \leq F_{100} \leq 10 \text{ kHz})$
 $F_0=0\%$ input, $F_{100}=100\%$ input



Input resistance:

Contact pulse or voltage pulse: 10 kΩ or more
 Current pulse: 200 Ω/510 Ω/1 kΩ
 (selectable with switch inside)

Input signal level:

Low level (V_L): -1 to +8 V
 High level (V_H): 2 to 24 V
 Swing width: 2 to 50 V

Input pulse width: Pulse width with a duty of 50±30% when the input is 100%

Transmitter power supply:

12 V DC/30 mA or 24 V DC/30 mA

Output signal: DC current or DC voltage signal

Output signal setting range and allowable load resistance:

Code	Setting range (DC)	Allowable load resistance
A	0 to 20 mA, span is 2 mA	15 V / 100% output (A) Ω
B	0 to 5 mA, span is 1 mA	or less
1	0 to 10 V DC, span is 0.5 V	10 kΩ or more
2	0 to 100mV, span is 10 mV	250 kΩ or more

Output adjustment: ±10% (Zero/Span)

■ Standard Performance

Accuracy rating: ±0.2% of span

Accuracy is not guaranteed for output level less than 0.5% of the span of a 0 to X mA output range type.

The accuracy is limited according to output range setting.

Output accuracy:

Code	Setting range (DC)	Output accuracy (%)
A	Span is less than 8 mA	$0.1 \times 8 / \text{Span (mA)}$
B	Span is less than 2 mA	$0.1 \times 2 / \text{Span (mA)}$
1	$V_{100} \leq 5 \text{ V}$ Span is less than 2 V	$0.1 \times 2 / \text{Span (V)}$
	$V_{100} > 5 \text{ V}$ Span is less than 4 V	$0.1 \times 4 / \text{Span (V)}$
2	$V_{100} \leq 50 \text{ mV}$ Span is less than 20 mV	$0.1 \times 20 / \text{Span (mV)}$
	$V_{100} > 50 \text{ mV}$ Span is less than 40 mV	$0.1 \times 40 / \text{Span (mV)}$

V100: 100% output

Response speed: 2 intervals of input + 50 ms, 63% response (10 to 90%)

Insulation resistance: 100 MΩ or more at 500 V DC between input and output, output and power supply, and input and power supply.

Withstand voltage: 1500 V AC/min. between input and (output and power supply).
500 V AC/min. between output and power supply.

■ Environmental Conditions

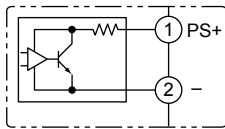
Operating temperature range: 0 to 50°C
Operating humidity range: 5 to 90% RH (no condensation)
Power supply voltage: 24 V DC±10% percentage ripple is 5%p-p or less
Effect of power supply voltage fluctuations: ±0.1% of span or less for the fluctuation within the operating range of power supply voltage specification.
Effect of ambient temperature change: ±0.2% of span or less for a temperature change of 10°C.
Current consumption:
24 V DC 90 mA (FQ2A), 60 mA (FQ2V)

■ Mounting and Dimensions

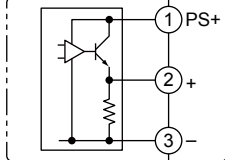
Material: ABS resin (Case body)
Mounting method: Rack, Wall or DIN rail mounting
Connection method: M4 screw terminals
External dimensions: 72 (H) × 24 (W) × 127 (D) mm
Weight: Approx. 130g

■ Block Diagram

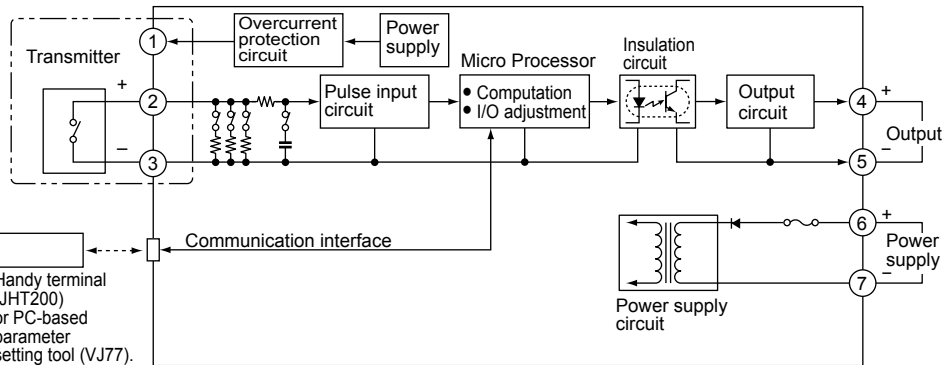
When receiving current pulse using internal resistor power supply



When receiving voltage pulse using internal transmitter power supply



When receiving voltage-free contact signal or voltage pulse (where terminal 3 is the positive input (+), terminal 4 is the negative input (-) for voltage pulse)



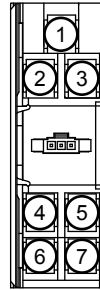
■ Standard Accessories

Tag number label: 1
Mounting block: 2
Mounting screw: M4 screw x 2

■ Custom Order Specifications

Output range (DC)	-10 to +10 V
Span (DC)	10 mV to 20 V
Zero elevation	-100 to +200%

■ Terminal Assignments



1	Input	(PS+)
2	Input	(+)
3	Input	(-)
4	Output	(+)
5	Output	(-)
6	Supply	(+)
7	Supply	(-)

■ External Dimensions

